

Exhibit 24
(Excerpt)
(Under Seal)

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA**

UNITED STATES OF AMERICA, ET AL.,

Plaintiffs,

v.

GOOGLE LLC,

Defendant.

Civil Action No.: 1:23-cv-0108 (LMB/JFA)

EXPERT REPORT OF PAUL R. MILGROM

DATE: January 23, 2024

**HIGHLY CONFIDENTIAL
SUBJECT TO PROTECTIVE ORDER**

forcing them to strategize about how best to respond to the publisher’s practice and make guesses about the publisher’s true floor price and about others’ bids. Multi-calling also increases processing costs and adds latency, damaging the end user’s online experience and leading to a reduction in advertising effectiveness.⁸¹

71. *Third*, as online display advertising platforms evolved to accept more bids from different demand sources in each auction, **self-competition**—which occurs when an advertiser submits multiple bids for the same impression—became a larger concern for advertisers. Self-competition can occur as a result of **multi-homing**, in which an advertiser uses multiple DSPs or exchanges to submit bids.⁸² When the same bidder submits multiple bids in a second-price auction, it may wind up making both of the two highest bids, with its own second-highest bid setting its price. In such cases, the advertiser would pay a lower price if its second bid were lower or omitted. Bidders would need to adjust their bids to avoid this possibility, requiring more complicated bidding strategies.
72. *Fourth*, some exchanges tried to increase their profits by using **non-transparent auctions**, claiming to calculate the winner’s price using a second-price rule, but actually charging winners a larger amount, for example by using the 1.5-price rule described earlier.⁸³ Such practices make participation in the auction less safe for advertisers and

⁸¹ See, e.g., Oded Poncz, Traffic duplication might be a bigger problem than ad fraud, AdExchanger (Jan. 11, 2016), <https://www.adexchanger.com/data-driven-thinking/traffic-duplication-might-even-be-a-bigger-problem-than-ad-fraud/> (“Another side effect of bid request duplication is that re-auctioning a bid takes time. In some cases, this could even become apparent to the end user.”).

⁸² In a 2021 survey, respondent advertisers and ad agencies (who all spent a minimum of \$1M annually on digital ads) used an average of 3.4 DSPs and planned to use 5.9 DSPs the following year. See Advertiser Perceptions, “DSP Report: Demand-Side Platforms” (2021), GOOG-DOJ-AT-02524665, at -666, -670. See also, e.g., Deposition of K. Kozlowski (Sep. 6, 2023), at 40:18-23 (“Q. Now, you mentioned, I believe, earlier that Comcast has used Google, Amazon, Yahoo and The Trade Desk to purchase digital advertising programmatically. Did I recall that correctly? A. Yes, you did.”).

⁸³ Presentation, “Bidding in adversarial auctions” (Nov. 27, 2017), GOOG-DOJ-05282625, at -635 (“Dirty [auctions are] called second price, but really more like first price”; “Dirtiness is introduced using a new type of floor called

the inventory type (*e.g.*, display, mobile, and app), with a limit of 200 floor prices at any time.⁸⁰⁹

452. By protecting advertisers from price-fishing, UPR also benefited publishers. Although individual publishers might be incentivized to engage in price-fishing tactics, advertisers might end up bidding less on *all* impressions, which in turn could end up harming *all* publishers. This is a well-known phenomenon in economics akin to the *tragedy of the commons*:⁸¹⁰ price-fishing publishers impose an *externality* that harms advertisers and other publishers. By preventing publishers from engaging in that type of gamesmanship, UPR protected advertisers and publishers that were not price-fishing.

453. A third-party survey of publishers in February 2020, after the introduction of UFPA with UPR, found that only 4% of respondents described UPR as having a negative impact on their business.⁸¹¹ Post-launch experiments found that the new auction format had increased revenues for non-Google DSPs buying via AdX and left total publisher revenues approximately unchanged.⁸¹²

⁸⁰⁹ See Google, Unified Pricing Rules, Google Ad Manager Help (accessed Sep. 12, 2023), <https://support.google.com/admanager/answer/9298008?hl=en> (“You can apply up to 200 unified pricing rules per Ad Manager network.”).

⁸¹⁰ See, *e.g.*, Ostrom, E. (2008). Tragedy of the commons. In *The New Palgrave Dictionary of Economics*, 2nd ed., Durlauf, S. N., & Blume, L. E. (eds.), Palgrave Macmillan.

⁸¹¹ See Advertiser Perceptions, “SSP Report: Part of the Programmatic Intelligence Report” (Apr. 16, 2020), GOOG-DOJ-AT-00608572, at -573 (“Sample: Digital sales and operations contacts from The Advertiser Perceptions Ad Pros proprietary community and trusted third-party partners as needed”), -577 (Figure [dark blue bars correspond to “Negative Impact”]). See also Sarah Sluis, Google Ad Manager Policy Changes Don’t Hurt Publishers, According to Advertiser Perceptions, AdExchanger (May 05, 2020), <https://www.adexchanger.com/platforms/google-ad-manager-policy-changes-dont-hurt-publishers-according-to-advertiser-perceptions/> (“Google’s recently changed rules around unified pricing only negatively impacted 4% of publishers.”).

⁸¹² See Presentation, “Changes to Ad Manager, AdMob auction” (Sep. 03, 2019), GOOG-DOJ-14549757, at -769 (“Impact is < 1% AdX web revenue”); Presentation, “1PA Impact Post Launch” (Nov. 27, 2019), GOOG-DOJ-14566285, at -288 (“One month after launch, holdback experiment comparing 1PA to 2PA shows